

## REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-12 have been cancelled. Claims 13-15 have been added. Claims 13-15 are pending and under consideration. Support for new claims 13-15 can be found in the specification, for example, at page 16, lines 1 to 19, at page 22, line 18 to page 23, line 9, and at page 28, line 16 to page 29, line 12. This amendment is believed to place the application in condition for allowance, and entry therefore is respectfully requested. In the alternative, entry of this amendment is requested as placing the application in better condition for appeal by, at least, reducing the number of issues outstanding.

### Entry of Amendment under 37 C.F.R. § 1.116

The Applicant requests entry of this Rule 116 Response because the amendments were not earlier presented because the Applicant believed in good faith that the cited references did not disclose the present invention as previously claimed. No new features or new issues are being raised.

The Manual of Patent Examining Procedures (M.P.E.P.) sets forth in Section 714.12 that “any amendment that would place the case either in condition for allowance or in better form for appeal may be entered.” Moreover, Section 714.13 sets forth that “the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified.” The M.P.E.P. further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

#### **I. Rejections under 35 U.S.C. § 102**

In the Office Action, at pages 2-4, claims 1-2, 5-9, and 12 were rejected under 35 USC § 102(e) as being anticipated by U.S. Patent No. 6,909,571 to Coleman et al.

Claims 1-2, 5-9, and 12 have been cancelled. Accordingly, withdrawal of these § 102(e) rejections is respectfully requested.

#### **II. Rejections under 35 U.S.C. § 103**

In the Office Action, at pages 5-9, claims 3-4 and 10-11 were rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 6,909,571 to Coleman et al. in view of

Bohez, "Compensating for systematic errors in 5-axis NC machining."

Claims 3-4 and 10-11 have been cancelled. Accordingly, withdrawal of these § 103(a) rejections is respectfully requested.

### III. New Claims

New claims 13-15 have been added. Claims 13-15 add no new matter and support for these claims can be found in the specification as originally filed. With respect to the cited prior art, neither Coleman et al. nor Bohez discuss or suggest:

obtaining a first actual tool length vector for which a tool length vector has been corrected, using a transformation matrix that is made from a reference position at which there is no mechanical error in the turning center of a spindle and an amount of misalignment of an actual turning center of the spindle from the reference position of the turning center of the spindle;

rotating said first actual tool length vector by the amount corresponding to the instruction for the second axis of rotation, using a transformation matrix that is made from a reference position at which there is no mechanical error in the second axis of rotation, an amount of misalignment of the actual second axis of rotation from the reference position and instruction position for the second axis of rotation, thereby obtaining a second actual tool length vector for which the misalignment of the second axis of rotation has been corrected;

rotating said second actual tool length vector by the amount corresponding to the instruction for the first axis of rotation, using a transformation matrix that is made from a reference position at which there is no mechanical error in the first axis of rotation, an amount of misalignment of the actual second axis of rotation and the actual first axis of rotation, an amount of misalignment of the actual first axis of rotation from the reference position of the first axis of rotation and instruction position for the first axis of rotation, thereby obtaining a third actual tool length vector for which the misalignment of the first axis of rotation has been corrected;

adding an instruction position vector and workpiece origin offset vector to the third tool length vector to obtain a machine position; and

driving the axes of linear motion and the axes of rotation to the machine position thus obtained,

as recited in new claim 13. In other words, the invention of claim 13 provides for a concrete error correcting method including specific error and misalignment calculations like mechanical error in the turning center of a spindle, mechanical error in the first axis of rotation, error in the second axis of rotation, misalignment of an actual turning center of the spindle from the reference position of the turning center of the spindle, misalignment of the actual second axis of

rotation from the reference position and instruction position for the second axis of rotation, and misalignment of the actual first axis of rotation from the reference position of the first axis of rotation and instruction position for the first axis of rotation. In contrast, Coleman et al. merely discloses that each potential cause of errors in rotational and translational positioning accuracy and axis alignment is investigated, and corrected if necessary, before proceeding further with the accuracy qualification process, or before proceeding with the machining of parts. As such, Coleman et al. does not teach the error correcting method of claim 13. Furthermore, Bohez does not disclose all of the features of claim 13. Therefore, claim 13 patentably distinguishes over the cited prior art for at least the reasons noted above. Thus, it is submitted that claim 13 is in a condition suitable for allowance.

Similarly, neither Coleman et al. nor Bohez discuss or suggest all of the features of the inventions of claims 14 and 15. Therefore, claims 14-15 patentably distinguish over the cited prior art for at least the reasons noted above. Thus, it is submitted that claims 14-15 are in a condition suitable for allowance.

## CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: \_\_\_\_\_

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